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Approaches to Learning among Trainee Teachers: Malaysian experiences

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Abstract

Studies reported that there were deficiencies in educational outcomes among students in terms of their critical thinking, communication and problem solving skills. These deficiencies are thought to be related to students' learning approaches that affect their ability to think critically and thus decrease academic performance. Hence, this study intends to examine the learning approaches used by the trainee teachers of UiTM; and whether any relationship exists between trainee teachers' learning approaches and academic achievement. A total of 255 respondents participated in this study. The results showed that there was a positive but low relationship between deep and strategic approaches to learning on academic performance. The findings of this study have practical implications to educators in developing a more systematic approach to academic teaching and learning.

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Keywords: Deep approaches; surface approaches; strategic approaches; productive learning

1. Introduction

Malaysian universities nowadays aspire to produce graduates who are knowledgeable and equipped with soft skills. Thus, critical thinking skills is one of the important aspects in the soft skill domain that is needed in higher education as the content of education at this level requires higher order thinking. One of the ways to enhance higher order thinking is through promoting deep approaches to learning. Studies evidenced that students who engaged in deep-level learning were more intrinsically motivated to seek meaning from their learning. In fact, they were committed to learning where they related subject material

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to meaningful contexts and prior knowledge, thus, enhancing higher order thinking. On the other hand, students who adopted a surface approach based their learning on extrinsic motivation of positive and negative reinforcement. Consequently, studies reported that there were deficiencies in educational outcomes among undergraduate and postgraduate students in terms of critical thinking, communication and problem solving skills. The overriding question is, were these deficiencies due to learning approaches that affect their ability to think critically? Furthermore, to what extent have educators played their roles in helping postgraduate students, particularly trainee teachers to increase positive learning outcomes?

2. Understanding approaches to learning

Students' approaches to learning are an expanding line of study that focus on describing and assessing students' learning process (Entwistle et. al, 2001). Extensive research was carried out in characterizing students' approaches to learning (Ausbel, 1968, Wittrock, 1974, Marton & Saljo, 1976,). For example, in his earlier work, Ausbel (1968) used the terms meaningful and rote learning whereas Wittrock (1974) described learning approaches as generative and reproductive processing. However, it was Marton and Saljo (1976) who coined the concept of learning approaches into two categories as Surface and Deep approach. In fact, it becomes one of the most influential concepts to have emerged from research into teaching and learning in higher educational (Dale and Mc Carthy, 2006). The proponents of approaches to learning such as Biggs (1987), Entwistle (1987), Richardson (1994a) and Marton and Saljo (1976) assert that the important aspect of the distinction between the two approaches lies in the intention or the absence of intention to understand. Therefore, the basic distinction in approaches to learning is students who applied a deep approach to learning aim towards the fundamental idea, meaning in the materials they were studying and critically relating it to other's experiences and ideas, which were associated with an intention to understand. Thus in order to do this, they will process the materials actively. Biggs (2003) suggests that students who deploy a deep approach tend to be intrinsically motivated, derived enjoyment from the learning task and apply the acquired knowledge to the real world. On the other hand, students applying surface approach tend to be extrinsically motivated by minimizing the use of their intellectual capacity, avoid personal understanding and sought to remember the text by word in a test or exam rather than actually understanding it. In this sense, Marton and Saljo (1976) argue that students adopting surface level of processing direct their attention to the text itself hence employing a reproductive orientation. However, later, Entwistle (1979) added a strategic approach to Marton and Saljo's model. Entwistle (1979) defines this third approach as intention to obtain highest possible grades, organize time and distribute effort to greatest effect, ensure conditions and materials for studying appropriate, use previous exam papers to predict questions and be alert to cues about marking schemes. According to Entwistle (2000) strategic student's main interest are towards achieving academic content (deep approach) and demands of assessment system (strategic approach). In this sense, Entwistle (2000) describe this behaviour as approaches to studying. Apart from understanding the concepts of learning approaches, Ingelton (1995) assert that the meanings students bring to their learning environments are constructed from their experiences in social settings of class, gender and ethnicity, replete with a complexity of power relationships and expectations of gender-appropriate behaviours. Therefore, it is equally important to examine the differences between gender and learning approaches.

3. Approaches to learning and gender

Males and females learn differently from each other (Ebel, 1999, Noble et al., 2001, Gurian & Stevens, 2004). For example, a Meta analysis study done by Severiens and Dam (1994) showed that men had a greater preference than women for the abstract conceptualisation mode of learning. Besides, men were

more often interested in the courses for the qualifications they offer while women were more often interested in learning for learning's sake. In another study, Dorval (2000) noted that in language learning tasks connected with problem-solving, male and female students showed clear differences in their approaches to learning tasks. In this sense, male students produced mass of short spurts of speech while female students produced big blocks of talk, were obedient, and there was much attentive listening and sympathizing. Dorval (2000) further explained that male students prefer learning tasks connected with competition in hierarchical groups, while female students learn by collaboration in small groups in which mutual liking is important. Some of these gender differences in learning could be explained from a biological point of view, where studies have reported that genetic differences in males' and females' brain structure predispose them to excel in different areas (Havers, 1995, Noble et al., 2011, Gurian & Stevens, 2004). Hence because of this, males tend to be naturally proficient in spatial and mathematical abilities while females are more verbally proficient. Hormonal differences are also thought to contribute to the learning approaches of males and females (Gurian, 2002) where higher levels of testosterone in males cause them to be more aggressive and impulsive. Therefore, males may find it difficult to sit still and be "obedient" over long periods of time unlike females. A nationwide government-initiated study of over 4,000 secondary school students in Malaysia by Zalizan et al. (2001 as cited in Nadia et al., 2010) have shown that females tend to perform better academically than males in school. The researchers found significant differences in learning styles among gender using Kolb's Learning Styles Inventory where female students preferred concrete sequential and abstract sequential learning styles compared to males.

4. Approaches to learning and academic achievement

Cano (2007) found that both intelligence and approaches to learning are significant factors in predicting students' academic achievement. His research revealed that high usage of deep approach to learning with general intelligence resulted in better academic performance. This is because students with successful academic achievement are more prone to use deep approach to learning than those who are less successful (Zeegers, 2001, cited in Ali and Sebai, 2010). In addition, Entwistle, Tait & McCune (2000) stated that in the subsequent years of a degree course especially when the evaluation system directly rewards a display of conceptual understanding, students will demonstrate high scores on the deep approach which will relate to academic success. Byrne et al. (2002), Duff (2004) and Tan and Choo (1990) cited in Ballantine et al. (2008), all stated that students who adopt desirable learning approaches, especially by scoring higher on deep approach and strategic approach scales, achieve a high level of academic success. Mayya, Rao and Ramnarayan (2004) explored the learning approaches and difficulties of undergraduate students in an Indian university. Using locally-developed Approaches to Learning Inventory, they found that the majority of students sampled utilised deep approaches to learning. However, among the percentage of students who used the surface approach, this study found that their tendency to adopt that approach had a significant association with various learner problems such as having a fear of failure and lack of confidence. Hence, this shows that when students feel anxious or overwhelmed, they are more likely to adopt the surface approach to learning. Gürlen, Turan and Senemoğlu (2013) employed the Approaches and Study Skills Inventory for Students (ASSIST) in their study involving 284 sophomore trainee teachers at a Turkish University. The findings revealed that strategic approaches to learning was positively correlated to academic achievement and was the best predictor of achievement in their study. Concurrent with the literature discussed in this paper, their study found that females engaged in this learning more than males. Other studies also corroborate the conclusions that deep and strategic approaches to learning tend to be correlated with academic accomplishment (Cano, 2005; Watkins, 2001 cited in Lietz & Matthews, 2006).

Unfortunately, not all results show a significant relationship between a deep approach to learning and the quantitative scores of the learning outcome (Byrne, Flood & Willis, 2004; Gijbels et al., 2005; Kember et al., 1995). Some studies found that deep approach did not result in higher grades (Minbashian et al., 2004; Trigwell & Prosser, 1991). Trigwell and Prosser (1991) cited in Kyndt (2011) studied the relationship between the observed approaches to learning and the academic achievement of 122 first-year students in a nursing course. They found a positive correlation between a deep approach to learning and high qualitative levels in academic achievement. However they found no such correlation to quantitative differences in outcome. In this respect, Dochy (2005) pointed out the fact that a deep approach to learning was rarely rewarded by the evaluation system. The reason therefore may be that the evaluation mainly assesses knowledge for which the use of a surface approach suffices to be successful (Scouller, 1998).

Nevertheless, many studies have explored approaches to learning in school context. In the higher educational setting, students face different conditions that may affect their learning. Thus, understanding trainee teachers' approaches to learning is important to improve learning in higher educational settings. Additionally, in order to empower education students to assume responsibility for creating a sustainable future, these students should be at the centre of a forward looking academic learning atmosphere. Furthermore, with the significant expectations placed on teacher education programmes by the Malaysian government, it is important to know how education students experience the teaching and learning approaches at their university. In addition, there was not much studies been explored on how Malaysian adults learn and whether or not the educational policies are adequate and integrative in nature to cater to the needs of these adults (Tan Poh Li, 2005). Hence, this study intends to examine the learning approaches used by the trainee teachers of UiTM; and whether these approaches exert any influence on their academic performance. More importantly, understanding learners' learning approach will be useful in designing effective instructional strategies to facilitate learning, particularly among adult learners.

5. Objectives of the study

- To identify the approaches to learning used by trainee teachers of UiTM, Shah Alam
- To identify the difference between approaches to learning and gender
- To identify the relationship between approaches to learning and academic achievement of trainee teachers of UiTM, Shah Alam

6. Methodology

This study utilized the survey method and is descriptive in nature. A self-report questionnaire was used to gather information related to the objectives of the study. The items measuring approaches to learning was adapted from Entwistle et al.'s (2000) Approaches and Study Skills Inventory for Students (ASSIST) with modification to suit the purpose of the study. The instrument consists of three components which are deep approach, surface approach, and strategic approach with 13 sub-scales. The respondents are asked to indicate their degree of agreement with the statements, scored on a seven-point Likert-type scale (1 = Strongly Disagree to 7 = Strongly Agree). The reliability coefficient of the scale was found to be 0.952. About 304 trainee teachers were asked to complete the questionnaire. 255 of them responded and returned the completed questionnaire. Hence the response rate was 81.2 %. The sample consisted of 10.9% male and 89.1% female undergraduates from various fields who are currently undertaking a postgraduate diploma program in teaching at the Faculty of Education UiTM, Shah Alam. The mean age of the trainee teachers was 28 years old**.** Pearson's Product-Moment Correlation Coefficient (r) was used to measure the strength and direction of the relationship between approaches to learning and academic performance. In order to identify the contribution of each significant independent variable towards the variance of

academic performance, multiple regression was utilized. However, there were limitation to the generalizability of the research findings to the larger population should be noted. Besides, the differences in male and female students' approaches to learning would have yielded more contrasting results if they were sampled more proportionately, however, the number of males enrolled in the programme were small. Also, as the sample consists of adults, it might have been interesting to compare differences in students' approaches to learning between those with families and those without.

7. Findings

7.1. Research objective 1: Approaches to learning used by trainee teachers of UiTM, Shah Alam

Table 1. Learning approaches used by trainee teachers of UiTM, Shah Alam

Approaches to learning	Mean	Std deviation
Deep approach	5.0380	0.67043
Strategic approach	5.1325	0.71551
Surface approach	4.3224	0.76349

Mean indicators 1-2.99= low; 3.00-4.99= moderate; 5.00- 7.00= high

Table 1 shows the mean scores of approaches to learning used by trainee teachers of UiTM, Shah Alam. The results indicated that the respondents used both deep and strategic approaches to leaning where mean scores were m = 5.1325, SD = .71551 and m = 5.0380, SD = .67043 respectively, as compared to surface approaches to learning where m = 4.4224 and SD = .76349.

Table 2. Dimensions in approaches of learning used by trainee teachers of UiTM, Shah Alam

Approaches to learning	Mean	Std deviation
Deep approach		
Seeking meaning	5.0675	.78570
Relating ideas	4.9615	.69503
Use of evidence	5.0372	.75258
Interest in ideas	5.1081	.80206
Strategic approach		
Organized studying	5.0266	.77795
Time management	5.0201	.82178
Alertness to assessment demands	5.2835	.82775
Achieving	5.2059	.77768
Monitoring effectiveness	5.1307	.78995
Surface approach		
Lack of purpose	3.8615	1.086
Unrelated memorizing	4.2206	.91140
Syllabus –boundness	4.6635	.81178
Fear of failure	4.5230	.89628

Mean indicators 1-2.99= low; 3.00-4.99= moderate; 5.00- 7.00= high

Table 2, presents the data on further descriptive analysis of the learning approaches used by the trainee teachers. The finding revealed that the sub scales of strategic approaches shows high mean scores namely, Alertness to Assessment Demands (m = 5.2835, SD = 0.82775), Achieving (m = 5.2059, SD = 0.77768), Monitoring Effectiveness (m = 5.1307, SD = 0.78995), Organised Studying (m = 5.0266, SD = 0.77795) and Time Management (m = 5.0201, SD = .82178). The result also indicated that the four sub-scales of deep approaches shows high mean scores namely, Seeking Meaning (m = 5.0675, SD = 0. 78570), and Interest in Ideas (m = 5.1081, SD = 0. 80206) and Use of Evidence (m= 5.0372, SD = 0.75258). However, Relating Ideas shows a moderate mean score (m= 4.9615, SD = 0.695030). On the other hand, all the sub scales of surface approaches show moderate mean scores namely, Syllabus Boundness (m = 4.6635, SD = 0.81178), and Fear of Failure (m = 4.5230, SD = 0.89628). Unrelated Memorising (m = 4.2206, SD = 0.91140) and Lack of Purpose (m = 3.8615, SD = 1.086).

7.2. Research objective 2: Differences between approaches to learning and gender

Table 3. Independent t-test result for approaches to learning and gender

Approaches to learning		Mean	t- value	Sig value
Deep	male	5.2104	1.479	0.140
	female	5.0181		
Surface	male	4.7208	3.097	0.02*
	female	4.2886		
Strategic	male	5.1799	0.348	0.728
	female	5.1301		

Based on the independent t-test shown in Table 3, there were no significant differences between deep and approaches and strategic approaches on gender where t = 1.470, p = 0.140 and t = 0.348, p = 0.728 respectively. However, the result shows that there is a significant difference between surface approaches and gender, where t =3.097, p= 0.02. This finding indicated that men (m = 4.7208) used more surface approaches than the women (m = 4.2886). This study contrast with the study done by Severiens and Dam (1994) where men showed more inclined to deep approach to learning and women more to surface or reproducing approach to learning. In another study, Shaari et. al (2011) found that generally male and female students in a Malaysian university did not display significant differences in approaches to learning where deep, surface-rationale and surface-disorganized approaches were compared.

7.3. Research objective 3: Contribution of approaches to learning towards variance on academic achievement

Based on multiple regression analysis, as shown in Table 4, the finding reveals that out of 13 sub scales of the approaches to learning, only three predictors were found to be significant, namely Achieving (t = 2.497 p = 0.013), Unrelated Memorizing (t = -2.969, p = 0.03) and Fear of Failure (t = 3.007, p= 0.003). The total amount of variance of the criterion variable that was predictable from the three predictors was 15.5%, and the adjusted R square change of 10.3%. Hence, since the adjusted R square could give a better estimation of the true population value, the contribution of the predictor variables towards the variance in the criterion variable in this study was reported based on the adjusted R-square value. Therefore, the overall regression model was successful in explaining approximately 10.3 % of the adjusted variance in academic achievement. This suggests that in this study, student approaches to

learning particularly the surface approach could be predicted by unrelated memorizing and fear of failure whereas the strategic approach could be predicted by students' tendency for achieving

Table 4. Multiple Regression Analysis on academic achievement

Variables	Un standardized	Standardized	t- value	Sig
constant	2.876		18.777	0.00
Seeking meaning	0.056	0.160	1.439	0.152
Relating ideas	0.012	0.031	0.280	0.780
Use of evidence	-.081	-0.224	-1.733	0.085
Interest in ideas	0.013	0.038	0.326	0.745
Organized studying	-0.001	-0.002	-0.014	0.989
Time management	-0.045	-0.137	-1.172	0.242
Alertness to assessment demand	-0.066	0.042	-1.572	0.118
Achieving	0.119	0.338	2.497	0.013**
Monitoring effectiveness	0.060	0.171	1.402	0.162
Lack of purpose	0.029	0.114	1.215	0.226
Unrelated memorising	-0.090	-0.295	-2.969	0.003**
Syllabus boundness	-0.003	-0.009	-0.085	0.932
Fear of failure	0.084	0.274	3.007	0.003**

F-statistic = 2.972, sig. <0.01, R2 = 0.155, Adjusted R2 = 0.103

8. Conclusion

This study is intended to examine approaches to learning among the trainee teachers of UiTM, Shah Alam. The finding revealed that the majority of the respondents were inclined towards using deep and strategic approaches to learning. The result is congruent with the study done by Biggs (1987a) and Richardson (2000). However, there was also evidenced that these trainee teachers tend to used surface approaches. In this context one could relate that students' way of learning varies even though they were in the same program or courses. Marton and Saljo (1976) claimed that students may adopt one approach rather than another, depending upon their conceptions of learning and their conceptions of themselves as learners. Nevertheless, Richardson (2000) asserts the choice of one approach to studying depends upon the content, the context, and the demands of particular tasks. Thus, interestingly the finding suggests that the respondents were inclined into looking for meaning in what they study rather than memorize it.

The finding also revealed that achieving (sub-scale in strategic approach) as well as unrelated memorizing and fear of failure (sub scale in strategic approach) were accounted for approximately10.3% of the adjusted variance in academic achievement.The findings suggest that the trainee teachers used surface approach to memories the course materials and strategic approach to obtain highest grades. This study is in line with the study done by Watkins (2001). In this sense, Wilding and Andrews (2006) believe that the effect of using the surface approach in terms of achieving grades can be positive or negative and depending on students' motives to apply it. On the contrary, Gijbels (2005) blames the nature of assessment system developed by the educational providers for such disappointing results. This is supported by Entwistle (1984) statement that says current assessment and teaching seems to encourage reproductive form of learning. However, Tang (1991) in her studies believed that students may tend to

employ a combination of understanding and memorizing approaches. She further elaborated that memorization could be divided into surface and deep. The deep memorizing approach was embraced by students who desired to use deep approach learning however, their courses and assessment system stressed on reproduction. Therefore, in order to obtain good marks students may to tend memorize their learning materials.

The findings have several practical implications for educators, trainers and educational providers particularly in the context of higher learning institutions. Firstly, the findings have contributed to a better perception of the relationship between students' learning approaches and academic achievement particularly among adult learners. Thus, an understanding of approaches to learning of trainee teachers could provide a useful insight to planning and designing effective instructional strategies to facilitate adult learning. These trainee teachers were adult learners and they learned differently from younger students. Adults obtain an educational activity with different experiences than do youth (Knowles et al., 2005). Besides, these trainee teachers pursue their studies in order to gain new knowledge and skills so that they could move up their career ladder. However, if the instructors fail to provide a proper directions and guidance, this may diminish their motivation to learn. Moreover, Lang (2006) noted the instructional methods used with adult learners are taught largely by a pedagogical teaching paradigm. Apart from this, these adult students were assumed to lacking in pertinent knowledge and thus they remain passive during classroom activities. Therefore, Knowles (1984) suggested that the curriculum must generate attitude of mutuality between teachers and students as joint investigators. Hence, by using combinations of adult learning techniques and strategies together with deep learning approaches, educators can create experiences that could enhance the learning of participants. Therefore, to make learning meaningful, Knowles et al (2005) suggest using of experiential techniques such as discussions, simulations, problem-solving activities, or case methods in classroom activities. Additionally, Merriam and Mohamed (2000) noted that the prior knowledge, experiences and disposition might shape the motives and strategies, which in turns could influence the approaches adopted by students.

Secondly, educators must provide a learning environment where students develop a strong personal interest because as Warburton (2003) argues, the first step in reaching a deep learning approach is a high level of student commitment with the learning subject so that students are motivated to understand. Thus, by promoting deep approach to learning, it is hoped that surface approach to learning can be reduced. Learning in such situations may not only be personal but also experientially situated. In this sense, gender differences will provide for an understanding on the strategic and unique learning differences between male and female specifically in relation to the learning approaches utilized by them. This knowledge provides for a strong basis to design and develop teaching techniques and strategies that will promote interest among the students. Male and female learning differences should not be seen as a gap in learning circumstances but should instead be regarded as a positive factor to promote, guide and situate appropriate meaningful learning experiences via deep, strategic or surface approaches in the learning environment. Finally, the nature of learning assessment as seen by the learners has a strong influence in determining the academic outcome. The employment of the various learning strategies and approaches (surface, deep or strategic approaches), are also related to the nature of the class assessments assigned. Thus, development of a learning assessment should move beyond a grade based learning outcome to a more comprehensive, skills and hands-on based learning outcomes. Hence, future research on this area should extend the current consideration of the study to include aspects on the types of learning assessments employed in classroom learning environment, other pertinent factors on individual learning differences (psychological and social differences), teaching factors (types of instructional strategies and approaches) and motives or reasons for learning.

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